IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants	:Syouji NOGAMI et al.	Group Art Unit : 2813
Appl. No.	: 10/562,235	Examiner : Sonya D Mccall Shepard
Filed	: October 31, 2006	Confirmation No. : 8539
For	: MANUFACTURING METHOD OF SEMICONDUCTOR WAFER AND SEMICONDUCTOR WAFER MANUFACTURED BY THIS METHOD	

COMPLETION OF RECORD

Commissioner for Patents
U.S. Patent and Trademark Office
Customer Service Window, Mail Stop **AMENDMENT**
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Sir:

In accordance with the duty of disclosure under 37 C.F.R. § 1.56 and §§ 1.97-1.98, and further to the Information Disclosure Statements filed December 22, 2005 and December 14, 2006, Applicant submit herewith a Japanese Office Action, and an English language translation of the same, mailed October 24, 2006, conducted in Japanese Patent Application No. 2004-110634, which is a counterpart of the above-captioned application. This document details the relevance of the following documents, as determined by the Japanese Examiner:

1) Japanese Patent Publication No. JP 2003-218037. Applicants note that this document was previously made of record by the Information Disclosure Statement filed December 22, 2005, and thus, no additional copy is provided herewith; and

2) Japanese Patent Publication No. JP 2001-196573. Applicants note that this document was previously made of record by the Information Disclosure

Statement filed December 22, 2005, and thus, no additional copy is provided herewith.

Applicants note that an Office Action on the merits has not yet issued in the instant application, and thus, no fee is necessary to ensure consideration of this statement. However, if an Office Action has issued and is crossing in the mail with this statement, the Patent and Trademark Office is hereby authorized to charge Deposit Account No. 19-0089 any fee necessary to ensure consideration of the submitted materials.

If there should be any questions, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully Submitted,
Syouji NOGAMI et al.

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拒絶理由通知書

特許出願の番号	特願２００４－１１０６３４
起案日	平成１８年１０月２４日
特許庁審査官	藤原　敬士　８４０６　４Ｒ００
特許出願人代理人	須田　正義　様
適用条文	第２９条第１項、第２９条第２項、第３６条

この出願は、次の理由によって拒絶をすべきものである。これについて意見があれば、この通知書の発送の日から６０日以内に意見書を提出して下さい。

理　由

１．この出願の下記の請求項に係る発明は、その出願前に日本国内又は外国において、頒布された下記の刊行物に記載された発明又は電気通信回線を通じて公衆に利用可能となった発明であるから、特許法第２９条第１項第３号に該当し、特許を受けることができない。
２．この出願の下記の請求項に係る発明は、その出願前日本国内又は外国において頒布された下記の刊行物に記載された発明又は電気通信回線を通じて公衆に利用可能となった発明に基いて、その出願前にその発明の属する技術の分野における通常の知識を有する者が容易に発明をすることができたものであるから、特許法第２９条第２項の規定により特許を受けることができない。

記　　（引用文献等については引用文献等一覧参照）

・理由の２
・請求項１、２、３、１０、１１
・引用文献等１
・備考
引用文献１；請求項６、段落番号【００３５】、第８欄１５－１９行 等参照
引用文献1に記載された発明は、エッチング工程を含むものであるが、エピタキシャル成長における段階的な温度降下が記載されている。
また、具体的な温度範囲として、第１の温度範囲が相違するものの、引用文献１の設定温度と格段の相違は見られず、また、顕的な効果も見られないことから、当業者の設計的範囲のものである。
更に、段階的効果について、引用文献１には、４段階のものが明記されていないが、温度降下の段数により顕的な効果は認められない。よって、当該構成を採用することは当業者であれば容易に想到し得たものである。

・理由の２
・請求項８，９
・引用文献等１，２
・備考
引用文献２；段落番号【００７３】等参照。
自然酸化膜が形成された際に、ウェットエッチングにより、自然酸化膜を除去してからエピタキシャル成長を行うことは周知の事項にすぎず、ウェットエッチング方法自体に格別な点も認められない。そして、トレンチを形成した際に自然膜の除去を行うことが引用文献２に記載されている。

・理由の１，２
・請求項１２
・引用文献等１
・備考
請求項12に係る発明としてのた半導体ウエハは、製造方法によって特徴づけられた「もの」の発明として格別な構成を有しておらず、引用文献1においても、ウエハ状シリコン基板を用いているものである。

３．この出願は、特許請求の範囲の記載が下記の点で、特許法第３６条第６項第２号に規定する要件を満たしていない。

記

・請求項１－９
・備考
請求項に記載された図面における番号の記載は、請求項に係る発明の技術範囲を不明確にさせるものである。
よって、請求項１－９に係る発明は明確でない。

引　用　文　献　等　一　覧

1.特開２００３－２１８０３７号公報
2.特開２００１－１９６５７３号公報

先行技術文献調査結果の記録

・調査した分野　ＩＰＣ
Ｈ０１Ｌ２１／２０５，Ｈ０１Ｌ２１／３０６

この先行技術文献調査結果の記録は、拒絶理由を構成するものではない。

＊この拒絶理由通知書の内容に関するお問い合わせ先＊
特許庁　特許審査第三部　電子素材加工
審査官　藤原敬士
電話　０３－３５８１－１１０１
内線　３４６９－３４７１
ＦＡＸ　０３－３５０１－０６７３

Reference No.: P03ML014B Dispatch No.: 487198 Dispatch Date: October 31, 2006

Notice of Reasons for Refusal

Patent Application No. Patent Application No. 2004-110634
Drafting Date October 24, 2006
Examiner of JPO Takashi FUJIWARA 8406 4R00
Representative/Applicant Masayoshi SUDA, Esq.
Applied Provision Japanese Patent Law Sections 29(1), 29(2), and 36

This application should be refused for the reasons mentioned below. If the applicant has any argument against the reasons, such argument should be submitted within 60 days from the date on which this notification was dispatched.

Reasons

1. The invention(s) in the claim(s) listed below of the subject application should not be granted a patent since it falls under the provision of Japanese Patent Law, Section 29(1)(3) for the reason that it has come to be available to the public through the invention(s) described in the publication(s) listed below which was distributed in Japan or foreign countries, or through electrical communication lines prior to the filing of the subject application.

2. The invention(s) in the claim(s) listed below of the subject application should not be granted a patent under the provision of Japanese Patent Law Section 29(2) since it could have easily been made by persons who have common knowledge in the technical field to which the invention(s) pertains, on the basis of the invention(s) described in the publication(s) listed below which was distributed in Japan or foreign countries, or the invention(s) having been available to the public through electrical communication lines prior to the filing of the subject application.

Remark (The list of cited documents etc. is shown below.)

Reason 2

Claims 1, 2, 3, 10, and 11

Cited Document 1

Note

Cited Document 1; See claim 6, paragraph [0035], and column 8, lines 15-19.

The invention taught by Cited Document 1 comprises an etching step including a step that a temperature is gradually reduced in epitaxial growth.

Further, the present invention defines a first temperature range as a specific temperature range which is different from that taught in Cited Document 1. However, since no remarkable difference can be found between the first temperature range and the temperature range taught in Cited

Document 1 or no threshold effect can be found in the range, the first temperature range is a mere design matter a person skilled in the art could make.

Still further, with regard to the effect produced in gradually reducing the temperature, Cited Document 1 fails to disclose the effect produced in four temperature ranges. No threshold effect can be found in each of the temperature ranges as temperature drops. Therefore, it was readily conceivable for a person skilled in the art to adopt the above described structure.

Reason 2

Claims 8 and 9

Cited Documents 1 and 2

Note

Cited Document 2; see paragraph [0073].

It is a mere well known matter to perform epitaxial growth, by wet etching, after removing a native oxide film, when forming the native oxide film, so that no remarkable inventive step is found in the wet etching method itself. Further, Cited Document 2 discloses to remove the native oxide film when a trench is formed.

Reasons 1 and 2

Claim 12

Cited Document 1

Note

The semiconductor wafer according to the invention of claim 12 fails to recite a newly invented structure as an invention of a "product" characterized by a method of manufacturing the semiconductor wafer. Cited Document 1 also utilizes a Si wafer substrate.

3. Claim(s) of the subject application does not comply with the requirement prescribed under the Japanese Patent Law, Section 36(6)(2) in the following points.

Remark

Claims 1 through 9

Note

Insertion of reference numbers corresponding to the attached drawings into the claims obscures the technical scope of the present inventions according to the claims.

Therefore, the inventions according to claims 1 through 9 are unclear.

The list of cited documents, etc.

1. Japanese Patent Application Laid-open No. 2003-218037
2. Japanese Patent Application Laid-open No. 2001-196573

Record of prior art search result

Technical fields to be searched

IPC H01L21/205, H01L21/306

This record is not a component of the reasons for refusal.

Any queries to the content of the Notice of Reasons for Refusal are answered by:

JPO, Third Sec. of the Patent Examination Dept., Electronic Material Processing

Examiner Takashi FUJIWARA

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